

REMARKS

Claims 1-12 are pending in this application. By this Amendment, claims 1-2, 4-5, 9-10 and 11-12 are amended. No new matter is added. Reconsideration of this application is respectfully requested.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance (for the reasons discussed herein); (b) do not raise any new issue requiring further search and/or consideration; (c) do not present any additional features without canceling a corresponding number of features from dependent claims; and (d) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Entry of the amendments is thus respectfully requested.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Kitov in the May 18 telephone interview. During the interview the Examiner tentatively acknowledged that by adding "a first resistor interposed between the gate and a source of the FET" from a dependent claim to each of the respective independent claims, that the rejection based upon 35 U.S.C. §102(b) is apparently overcome.

The Examiner expressed the position that, even though the rejection based upon §102(b) is overcome, the Amendment does not place the application in condition for allowance because the rejection based upon 35 U.S.C. §103(a) would remain. The Examiner admitted that he had not yet reviewed Applicant's arguments asserting that the Nasila/Izawa combination, upon which the 35 U.S.C. §103(a) is based, is improper. As addressed below, Applicants respectfully assert that: 1) even if combined, Nasila/Izawa combination would not include all claimed features; 2) the proposed modifications would change the purpose of operation of Nasila; and 3) the Nasila and Izawa patents address issues unrelated to the

present application. For at least these reasons, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Nasila solution to produce a circuit as described in the present application. Given that the Nasila/Izawa combination is improper, Applicant's respectfully submit that the combination of the Nasila/Izawa combination with any other reference, as suggested by the Examiner during the May 18 interview would also be improper.

Further, Applicants would like to emphasize that by adding a feature to an independent claim from a dependent claim, the resulting independent claim is broader than the original dependent claim. Therefore, the scope of the respective independent claims will necessarily have been addressed by the prior art searches already performed by the Examiner. Therefore, the claim amendments do not necessitate further search and/or consideration.

For at least the reasons addressed above, and for at least the reasons detailed below, Applicants respectfully submit that the Amendment is proper and should be entered into the record.

I. 35 U.S.C. §102(b) Rejection of Claims 1 and 4

The Office Action rejects claims 1 and 4 under 35 U.S.C. §102(b) as unpatentable over U.S. Patent No. 6,005,761 to Izawa et al. ("Izawa"). This rejection is respectfully traversed.

Independent claim 1 recites, *inter alia*, "a first resistor interposed between the gate and a source of the FET." Independent claim 4 recites, *inter alia*, "a first resistor interposed on a second connection line between the gate and a source of the FET." These features were previously included in dependent claims 2 and 5, respectively.

Applicants respectfully submit that Izawa does not disclose, teach or suggest the combination of features recited by the respective claims. Accordingly, it is respectfully

submitted that claims 1 and 4 are patentably distinguishable over the applied art.

Accordingly, withdrawal of this rejection is respectfully requested.

II. 35 U.S.C. §103(a) Rejection of Claims 1-2, 4, 9, and 11

The Office Action rejects claims 1-2, 4, 9, and 11 under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 5,886,563 to Nasila et al. ("Nasila") in view of Izawa. This rejection is respectfully traversed.

The Office Action states at page 7, lines 5-12, that "both references have the same problem solving area, namely providing power MOS load drivers. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Nasila solution by removing the second (bottom) transistor together with the Zener diode from the circuit, since as well known in the art, the half-bridge drivers are used only for bipolar driving of the load, and if bipolar driving is not required, as Izawa et al. demonstrated, only one transistor and no Zener diode is necessary. The Izawa circuit has definite advantage in cost of the parts." Applicants respectfully disagree for at least the following reasons.

A. Even if Combined, Nasila and Izawa Would Not Include All Claimed Features

First, even if the circuit in Nasila were modified as described in the Office Action, the resulting circuit would not include all of the features recited in claim 1. For example, if the exemplary circuit in Nasila shown in Figs. 2, 3, 6 or 7 were modified, the resulting circuit would still not include "a first resistor interposed between the gate and a source of the FET," as recited in claim 1. Alternatively, if the exemplary circuit in Nasila shown in Fig. 8 were modified, the resulting circuit would not include "a first connection changer interposed on a connection line between a gate of the FET and a gate drive voltage supply source, the first

connection changer changing a connection state between a first connection state in which the gate is connected to the gate drive voltage supply and a second connection state in which the gate is connected to a ground," as recited in claim 1.

B. The Proposed Modification Would Change the Principle of Operation of Nasila

Second, Applicants respectfully assert that even if the circuit in Nasila were modified as described in the Office Action, the proposed modification would change the principle of operation of the invention taught by Nasila. For example, the circuit would not include transistors that are "electronically interlocked to preclude cross-conduction," as taught by Nasila. Therefore, in accordance with MPEP §2143.01, the proposed modification is improper. Specifically, MPEP §2143.01 states:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

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If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) (Claims were directed to an oil seal comprising a bore engaging portion with outwardly biased resilient spring fingers inserted in a resilient sealing member.)
(MPEP §2143.01) (Emphasis Added)

C. Nasila and Izawa Address Unrelated Issues

Third, although both Nasila and Izawa drive loads, Nasila and Izawa address issues that are entirely unrelated. For example, the circuit in Izawa addresses protecting MOSFET 18 from over-heating and over-current conditions. With respect to heat protection, Izawa describes at col. 13, lines 55-62, overheat detection circuit 12 that includes temperature detection diode 124 near MOSFET 18 to detect an overheat state and a comparator 122 to generate an overheat detection signal 12a that is transmitted to an overheat protect device 10. Overheat protect device 10 responds by generating load drive instructions 102a and gate control signal 108a.

With respect to over-current protection, Izawa describes at col. 14, lines 50-56, over-current detection circuit 14 that includes resistor element 145 serially connected between the drain of MOSFET 18 and the load 32 and a comparator 142 to detect a voltage produced in resistor 145 and that generates an over-current detection signal 14a that is transmitted to overheat protect device 10. Overheat protect device 10 responds by adjusting generating load drive instructions 102a and gate control signal 108a, accordingly.

The circuit in Nasila addresses an entirely different problem. As stated in Nasila at col. 1, lines 52 through col. 2, line 6, the circuit in Nasila is designed to protect against damaging a circuit with a half-bridge topology due to the simultaneous conduction of both (output) transistors in the circuit. (See col. 1, lines 52-55). Nasila addresses this problem with a circuit in which "the transistors comprising the half-bridge are electronically interlocked-precluding cross-conduction; and high-side voltage generation and logic level translation are integral to the interlock mechanism." (See col. 2 lines 1-5). For example, at col. 2, lines 9-17, Nasila states that, "illustrated in FIG. 2 is an Ideal Interlocked Half-Bridge schematic. Q1, and Q2 combine to form a half-bridge phase leg. Diode CR2 provides reverse isolation from

the GATE to SOURCE of Q1, while permitting forward current through Q2. Observe that if Q2 is conducting, Q1 will be biased OFF through CR2; and that if Q2 is OFF, Q1 will be permitted to conduct, provided it is biased ON. Therefore, the conduction of Q1 and Q2 are mutually exclusive." This technique is very different from that of Izawa, and addresses a different problem.

Applicants respectfully assert that because of the entirely different objectives taught by Izawa and Nasila, and the entirely different techniques employed by each for achieving those objectives, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Nasila solution to produce a circuit as described in the present application. For example, neither Nasila or Izawa teach protecting a transistor from a negative surge current generated as a result of powering off an inductive load. (See the original specification at page 21, line 14, through page 22, line 4). Therefore, one of ordinary skill at the time the present application was filed would not have been motivated to combine the circuits taught by Izawa and Nasila in order to produce a circuit that performs such a function.

* * *

For at least these reasons, Applicants respectfully submit that (a) it would not have been obvious to combine Nasila and Izawa, and (b) even if combined, the Nasila/Izawa combination would not include all the features recited in claim 1. Accordingly, it is respectfully submitted that claim 1 is patentably distinguishable over the Nasila/Izawa combination. Claim 2 depends from independent claim 1 and is likewise patentably distinguishable over the Nasila/Izawa combination for at least its dependence on an allowable base claim, as well as for additional features it recites. Claims 4, 9, and 11 include features similar to those feature included in claim 1. Therefore, even if combined, the Nasila/Izawa combination would not include all the features recited in those claims. Accordingly, it is

respectfully submitted that claims 4, 9, and 11 are patentably distinguishable over the Nasila/Izawa combination. Accordingly, Applicants respectfully request withdrawal of the rejection.

III. 35 U.S.C. §103(a) Rejection of Claims 10 and 12

The Office Action rejects claims 10 and 12 under 35 U.S.C. §103(a) as unpatentable over Nasila in view of Izawa. However, claims 10 and 12 depend from independent claims 9 and 11, respectively, and are patentably distinguishable over the Nasila/Izawa combination for at least their dependence on an allowable base claim, as well as for additional features they recite. Accordingly, Applicants respectfully request withdrawal of the rejection.

IV. 35 U.S.C. §103(a) Rejection of Claim 3

The Office Action rejects claim 3 under 35 U.S.C. §103(a) as unpatentable over Nasila in view of Izawa and further in view of U.S. Patent 5,828,244 to Palara (Palara). However, Palara does not overcome the above-described deficiencies of Nasila/Izawa. Claim 3 depends from independent claim 1, and therefore, is likewise patentably distinguishable over the Nasila/Izawa/Palara combination for at least its dependence on an allowable base claim, as well as for additional features it recites. Accordingly, Applicants respectfully request withdrawal of the rejection.

V. 35 U.S.C. §103(a) Rejection of Claims 5, 7 and 8

The Office Action rejects claims 5, 7 and 8 under 35 U.S.C. §103(a) as unpatentable over Nasila in view of Izawa and further in view of U.S. Patent 6,392,463 to Kitagawa (Kitagawa). However, Kitagawa does not overcome the above-described deficiencies of Nasila/Izawa. Claim 5 depends from independent claim 4, and therefore, is likewise

patentably distinguishable over the Nasila/Izawa/Kitagawa combination for at least its dependence on an allowable base claim, as well as for additional features it recites.

Accordingly, Applicants respectfully request withdrawal of the rejection.

Claims 7 and 8 include features similar to those feature included in independent claim

1. However, Kitagawa does not overcome the above-described deficiencies of Nasila/Izawa.

Accordingly, it is respectfully submitted that claims 7 and 8 are patentably distinguishable over the Nasila/Izawa/Kitagawa combination. Accordingly, Applicants respectfully request withdrawal of the rejection.

VI. 35 U.S.C. §103(a) Rejection of Claim 6

The Office Action rejects claims 6 under 35 U.S.C. §103(a) as unpatentable over Nasila in view of Izawa, further in view of Kitagawa, and still further in view of Palara.

However, Kitagawa and Palara do not overcome the above-described deficiencies of Nasila/Izawa. Claim 6 depends from independent claim 4, and therefore, is likewise patentably distinguishable over the Nasila/Izawa/Kitagawa/Palara combination for at least its dependence on an allowable base claim, as well as for additional features it recites.

Accordingly, Applicants respectfully request withdrawal of the rejection.

VII. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-12 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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